

RRF Shipboard Logistics Readiness – A Decade of Preparation

On 18 February 2003, the U. S. Department of Transportation's U.S. Maritime Administration (MARAD) completed the last of 36 Ready Reserve Force (RRF) ship activations in support of Operation Enduring Freedom. Those 36 ships and four others already active as part of the US prepositioned force provided a significant augmentation to the U.S. Navy's cargo fleet in providing sealift support to United States and coalition forces in Iraq. All of the activations were successful and accomplished on schedule. This was a notable performance that reflected a significant improvement in ship readiness during the decade that had passed since the last major force activation in support of Desert Storm/Shield/Sortie in 1990 – 1992, when only about one-third of the ships met their specified activation period. One recognized area of improvement in the readiness of the RRF ships to meet their activation commitments, and the subject of this article, was that of shipboard supply support.

Gulf War I Supply Support

In 1990, the Supply Readiness of MARAD Ready Reserve Force ships was not acceptable. The agency had no formal established and standardized supply support system. No comprehensive configuration records of installed equipment existed for the ships. There were no procedures in place to determine what parts should be aboard to support the installed equipment. Supply support was entirely the responsibility of each ship's contracted manager company. Normally, such responsibility fell upon the individual ship Engineers, who, in keeping with merchant marine practices, may have walked aboard for the first time within just weeks or days of the activation notice, and possessed little familiarity with the specifics of "storekeeping" and ship supply support. Compounding the problems was the fact that in most cases, there were no accurate and reliable databases reflecting which parts were aboard ship, or where they were located. Spare parts were typically stored in metal parts boxes labeled with an equipment name and located around the ship in machinery spaces, normally, but not always, in the vicinity of the supported equipment. Finding parts frequently required the historical and personal knowledge of the Chief Engineers, and normally occurred by the "opening and browsing" method of storekeeping. Just prior to the events in the Persian Gulf (1989 – 90) the need for improvement in the supply support of RRF ships was gaining recognition within MARAD.

The Beginning of the MARAD Supply System

The road to improvement began with the creation of a Division of Logistics Support within MARAD headquarters, staffed by professional and experienced ship logistics managers. That was followed by the establishment of logistics management offices in each of the three MARAD ship-controlling regions, headed by a Logistics Management Officer (LMO). These region offices were staffed by 3-5 professional inventory management specialists. It was recognized early on that this cadre of logistics professionals could not bring about the necessary changes on its own, so contractor support capability was established to provide assistance in establishing the formal and standardized supply support system. Efforts in the early years were focused on establishing a baseline of support for each of the ships.

Contractor-staffed teams with Region and Headquarters Quality Assurance oversight visited the ships, and a critical equipment configuration audit was conducted and inventories completed of all repair parts, technical manuals, vessel drawings, and accountable property. The information generated from this effort was entered into a simple shipboard inventory management program called PC-SAL. This program allowed the Chief Engineers (RRF ships do not have Supply Officers or even storekeepers) to easily enter their issues and receipts and maintain the inventory data on their installed equipment. From September 1989 to late 1994, the MARAD & contractor team conducted basic repair part inventories and equipment configuration audits on 92 RRF ships. With this accomplishment, RRF Engineers now had visibility of the material that was aboard. Thus basic and reliable storekeeping became possible. Additionally, all data made available to the Ship's Engineers in PC-SAL also became available centrally for use by Headquarters and Region engineering and supply personnel in another centrally managed aggregate database called the Equipment Configuration and Spare Parts Management System (ECSMIS).

With the completion of these baseline shipboard inventories and the establishment of centralized and standardized Supply policies and procedures, the foundation of the MARAD Supply System was in place. A clear improvement in supply readiness of the ships could be demonstrated. Three additional programs were established during these early years that also contributed to the supply readiness of the MARAD ships:

- An equipment-provisioning program was developed which targeted those critical equipments on ships that did not have adequate spare parts support. This program, staffed by contractor personnel, developed repair part allowances that were then reviewed for approval by ship and MARAD engineering personnel. Since its inception, this provisioning process has resulted in the establishment of allowances for over 90,000 spare parts on 71 ships.
- One result of conducting thorough wall-to-wall inventories of the ships was to gain visibility over excess material no longer required because of equipment removals. As much of the equipment on MARAD ships was aged and difficult to support, MARAD did not want to dispose of these parts if they had applicability to other RRF ship equipment. Therefore, the parts were sent to the nearest region warehouse and a newly designed Material Reutilization Material (MRM) program initiated to screen all parts. If applications existed on other ships, the material was placed in the Shore Based Stock (SBS) of that warehouse for future issue if required.
- A central parts procurement program was also established, to ensure provisioned spare parts were purchased and placed aboard the ships. Parts requirements were researched for issue from the SBS (the "first source of supply"); or by requisitioning from the Federal Supply System (FSS), if available; or, as a last source, from commercial sources. This program to procure the initial allowance of spare parts has resulted in purchase of over 15,000 parts with an investment of over \$11.4 million since the program's inception.

Accomplishing this improvement in information and visibility of shipboard support assets achieved another goal: it helped bring the MARAD and RRF maintenance and supply communities together in realizing that the initiation of a ship supply management program was essential to the improvement of overall ship readiness. Ship activation results were measurably improved by the implementation of this simple, yet effective supply management philosophy and system.

While beneficial, these improvements brought to the forefront the need to make even more improvements in shipboard supply support. Parts storage facilities and aids were still inadequate on most ships, and technical documentation was incomplete and often haphazardly stored. Although the agency had improved knowledge of what was aboard the ships, that didn't necessarily equate to adequate support for installed equipment. During the early inventories, emphasis had been placed on identifying the parts and their location in order to establish inventory visibility. Additional technical research was needed to determine the applicable equipment relationship of the parts, and thereby better assist the Chief Engineer in finding the needed items. Thus was born a new ship supply management program, deliberately planned and executed, to support the sustained improvement of ship supply readiness.

Supply Management Improvement Program (SMIP)

SMIP was conceived and designed as a broad-based program to focus on continuing the improvement in ship supply readiness that had begun in the early 1990s. The initiation of SMIP also marked maturation of the MARAD Logistics Support Program from a property management-focused program to a program involving the integration of multiple management systems. Beginning with the CAPE KENNEDY in mid 1995, MARAD planned and initiated a program to perform comprehensive ship logistics support overhauls. These overhauls included updating the equipment configuration and spare parts inventory records, but went much further. The MARAD Logistics Support Contractor performed extensive technical research to determine the correct equipment application of all repair parts using technical manuals, drawings, and any other technical documentation that was available. This extensive technical research also facilitated the identification of situations where no technical documentation existed aboard the ship for critical equipment. When this occurred, appropriate documentation was located in the MARAD system, or was purchased, first to be used in the supply overhaul, and then to be inducted into the ship's technical library. Bar code technology was also introduced to the ships during these overhauls, as repair parts, equipment, technical documentation, and accountable property all received labeling that included a bar code that tied the item to the appropriate record in the PC-SAL database.

Additionally during the logistics overhauls, extensive storage improvements were accomplished, with central storerooms established on the ships (where configuration permitted) and modern "Vidmar" storage cabinets installed to hold the relocated parts. Examples of "pre-SMIP" and "post-SMIP" storerooms are presented as Photos 1 and 2. Modernized storerooms provide much better protection of the valuable inventory, and enable professional inventory management to be performed by the Chief Engineers.

On many ships, the region logisticians and ship engineers were able to designate a specific compartment for use as a dedicated technical library. This innovation greatly increased the utility of the technical library and facilitated greater document control by the Chief Engineer or designated assistant.

Completion of a ship logistics support overhaul gave the ship's Chief Engineer the capability, by using PC-SAL, to maintain visibility of the vessel's installed equipment. The use of links to all on board spare parts and their locations and the adaptation of integrated applications led to the use of bar code scanners to update the database reflecting issues, receipts, and inventory actions. A less tangible benefit of these extensive supply overhauls gradually became apparent; the shipboard engineers gained a realization and appreciation that the formal logistics support overhaul process, including improved supply management programs and vastly improved storage facilities did indeed provide them benefits that were measurable in improved availability of support.

MARAD operates several special purpose ships with unique and vital capabilities such as the Off Shore Petroleum Discharge System (OPDS) and Modular Cargo Discharge System (MCDS). These ships carry a large allowance of mission essential outfitting material to support their operations. Historically, after every deployment of the system, the inventory of this material was in disarray, unaccounted for, or consumed and not replaced. No system existed to maintain inventory accountability and replacement in order to restore the supply readiness in advance of the next deployment. Through the SMIP program, this material was inventoried on all ships, and the inventory added to the shipboard management program. Material shortages could then be identified and replacements ordered as necessary to bring the outfitting material back to full allowance and reliable readiness for the next activation.

While the priority focus of SMIP was the improvement of direct support aboard the ships, there were several other broad system improvements undertaken as well:

- The Shore Based Spares System was strengthened with new improved storage facilities in the Western and Central Regions. Wall-to-wall inventories were conducted in all three warehouses. An automated warehouse management program was developed, which supported measurable improvement in the shore support system as all involved persons were given access to that information, and therefore could initiate action to obtain material from the SBS stocks.
- The provisioning program was revamped and streamlined to provide a more effective link to the parts procurement process.
- An aggressive program of structured and formal supply inspections, known as Logistics Management Reviews (LMR), was instituted. LMRs became the responsibility of each region, with QA responsibility falling to the Headquarters staff. Such teams now periodically go aboard selected ships for one or two days and conduct a review of supply procedures and management, sample configuration records and inventories, inspect storage conditions, and discuss supply management performance with the ship engineers. A side benefit is that valuable supply management training is also accomplished. These LMR reviews provide an effective basis for measuring the performance of the responsible

persons in carrying out the policies and procedures of the MARAD logistics support program. Follow-up assist visits occur as required to assure improvement in supply management knowledge and skills.

Operation Enduring Freedom

The war with Iraq provided the opportunity to evaluate the state of the supply readiness of a significant portion of the RRF. As mentioned earlier, 36 ships were activated during that period. A post-operation logistics lessons learned study visited 21 of those ships and interviewed Chief Engineers, Chief Mates, Port Engineers, MARAD Surveyors, and MARAD Region Logistics Specialists. The feedback of those visits as well as the operational reports indicated that supply support was generally good, and significantly better than a decade earlier. It is noted that the ships operations resulted in them operating without any logistics resupply for extended periods in excess of 100 days in some cases. The improvements in parts availability provided in recent years contributed to those successes.

One last area in which the development of the MARAD supply system was evident was in the ability of the system to respond to significant last minute requirements. Priority demands for significant purchases and shipment of such items as Chemical, Biological, and Radiological Defense (CBRD) material; personal protective gear such as Emergency Breathing Devices; Lashing gear; and high security safes were placed on the system. The response was successful, as all needed items were purchased and on board the ships prior to sailing.

The Future

The activations for Operation Enduring Freedom, as well as the results of our Logistics Management Reviews have provided us a basis to assess the actions of recent years, and gauge where we are in the level of logistics support available to the ships of the RRF. The task we face now is to establish the focus for the future. We have begun modernizing our Logistics Management Information System, replacing nine individual management programs that have evolved separately over the years as the MARAD Logistics business processes developed and matured, with an integrated system called MARAD Logistic Management System (MLSS), depicted in Exhibit 3. MLSS uses state of the art technology and the advantages of the Internet to integrate all of the business processes into a common system, with shared data and enhanced capabilities.

It is clear that we will face declining resources in our efforts to continue the improvement of the support to the ships. Using improved information systems, and the results of the recent reviews of ship operations, we must focus on those improvements that offer the biggest bang for the buck and gain incremental improvements wherever they can be found.

"My logisticians are a humorless lot...they know if my campaign fails, they are the first ones I will slay." -Alexander-

While the MARAD logisticians are not humorless as in the above quote, we do understand the vital contribution of good logistics to the maintainers and operators of the RRF, and will continue to dedicate our efforts to the continual improvement of that support.

Notes on the Authors:

Richard H. Williams and Glenn I. Downer are both retired U.S. Navy (Supply Corps) Captains. Captain Williams retired in 1990. He graduated from the U.S. Naval Academy in 1963. Sea duty tours include USS TAUSSIG (DD 746); USS HARRY E. HUBBARD (DD 748); Staff, Destroyer Squadron NINETEEN; Supply Officer, USS GRIDLEY (DLG 21); and Military OIC and Supply Officer, USNS SIRIUS (T AFS 8). He served overseas at Naval Supply Depot, Subic Bay, RP. Duties also included several Joint and Navy tours in Washington, DC. His last assignment was as Vice Commander, Military Traffic Management Command. Captain Williams currently serves as the Chief, Division of Logistics Support, US Maritime Administration, a position he has held since 1994.

Glenn Downer served on active duty for 27 years, retiring in 1992. His notable tours included serving as Supply Officer of USS FIREDRAKE (AE 14) and USS DWIGHT D. EISENHOWER (CVN 69); Executive Officer, Navy Fleet Material Support Office; several Joint and Navy tours of duty in Washington, DC, and shore operational tours at Naval Air Stations Lemoore and Moffett Field, and NSD Guam. Captain Downer has worked in support of the MARAD RRF program since his retirement from the Navy, as Vice President, Veridyne, Inc., and Program Manager of the MARAD RRF logistics support and procurement contracts.

Both officers received degrees in Master of Business Administration (Distribution Management) at Michigan State University.